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ABSTRACT

A study assessed the effectiveness of various ways of identifying at-risk middle school students for participation in a dropout prevention program. It was considered important to explore factors related to identifying students who were most in need of the program. During the first semester of the project, teacher recommendations, attendance, age, and a variety of perceived competence measures were used as predictors of failing grades, grade point average, and frequency and severity of discipline referrals. The study took place in a small-city school district in North Carolina which had a dropout rate above the state average. Contrary to national trends, the typical dropout in the district was a white male. Subjects were all 334 sixth-grade students. Findings confirmed that it was possible to predict with a fair amount of accuracy which children were at risk of receiving failing grades and what their grade point average might be. The number of failing grades appeared to be a theoretically strong outcome indicator. It is concluded that teachers can identify early in the semester students who are at risk of failing, and they can do so with measures that are easily accessible and fairly accurate. (RH)

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# Identifying Students for Participation in a Model Middle School Dropout Prevention Program

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Identifying Students for Participation in a Model
Middle School Dropout Prevention Program

The high school dropout rate in the United States is a matter for serious concern (Hamby, 1989). Conservative estimates place the dropout rate at 25% nationwide (Mann, 1985). In North Carolina the dropout problem is even more severe. Figures show that in 1985 (Office of Educational Research and Improvement, 1986) North Carolina ranked 37th in the nation with a high school graduation rate of 69.3%. Since 1985 the State has initiated a wide range of dropout prevention programs, however, the bulk of these funds have been directed toward assisting children aged 14 and older. It is understandable and laudable that the State has chosen to address the problem at its most direct site, but it is well understood that the problem of marginality begins much earlier than the high school years (Sinclair & Ghory, 1987).

Nationally, dropout prevention programs for at-risk youth have emerged and are increasing (Karweit, 1988; Orr, 1987; Sherman, Celebuski, Fink, Levine, & St. John, 1987; Slavin & Madden, 1989). In North Carolina (Casebolt, 1988; O'Sullivan, 1988a), these programs have almost exclusively focused on direct intervention with the students, often completely isolating them from the regular school teachers and classes. Even when these programs prove successful, re-entry into the academic mainstream can erase the gains obtained.

In response to this situation a model middle school dropout prevention program was proposed for a small-city public school system with a dropout problem estimated at 9.4%. The State's average is estimated at 7.6% of the total enrollment (North Carolina State Board of Education, 1987). The proposed program combined direct intervention for at risk students under the guidance of a resource teacher with concurrent staff development activities for regular teachers.

The proposal was funded for two years by the Mary Reynolds Babcock Foundation, and program planning began in the summer of 1988. During the 1988-89 academic year, selected at-risk sixth grade students spent part of the academic day (math and science classes) with a resource teacher skilled in working with at-risk students, and the remainder of the day was spent with regular subject matter teachers. The resource teacher also served as a student advocate, including the facilitation of home/school coordination.

## Objectives of the Study

The purpose of the study was to assess the relative effectiveness of a variety of measures in identifying at-risk students for participation in the program. Since the program was to run for two years and subsequently to serve as a model for other programs, it was important to explore factors related to identifying students who were most in need of the program. Teacher recommendations, attendance, age, and a variety of perceived competence measures were used as predictors of grades of F, grade point average, frequency of discipline referrals to

the office, and severity of discipline referrals to the office for the first semester of the project.

Early identification of and successful interventions with at-risk children are the keys to assisting that one child in four who is dropping out of high school. To date, most dropout prevention programs have identified students and provided program services without empirically examining the justification for their actions. Identification of at-risk students for participation in dropout prevention programs would be more effectively handled, if readily available, school-based data could be used with almost the same confidence as less readily available data (e.g. permanent file records). The identification of at-risk students would then be more feasible. Further, if we can empirically test the relative merits of various factors in predicting a students' degree of risk, then we will be better able to focus the identification process and serve the appropriate audience.

## Theoretical Framework

Researchers have consistently identified school based problems associated with dropping out of high school: multiple retentions in grade, poor grades, a history of truancy, disaffection with the school, and behavior problems that result in disciplinary actions (Catterrall & Stern, 1986; Farnworth, Schweinhart, & Berrueta-Clement, 1985; Hess & Greer, 1986). It is reasonable, therefore, to expect that these factors should predict the degree to which a student may be at risk of dropping out. O'Sullivan (1988a) reported successful use of an at-risk rating scale of students' grades, attendance, behavior ratings,

disciplinary actions, and teachers' recommendations to identify at-risk 7th graders for participation in a nine-week decision-making course. In a subsequent analysis of the same data, O'Sullivan (1988b) showed that the informal at-risk rating scale she used in the study correlated .92 with a weighted at-risk rating scale where the weights were generated through a multiple regression analysis.

A major assumption of this study is that, for want of longitudinal data, the degree to which a 6th grade student is at risk of dropping out of high school is approximated by the subsequent short-term school successs (report card grades and disciplinary actions required). The student who normally gets passing grades and avoids trips to the office rarely ends up dropping out of school. Dropout profiles have been shown to vary by school district, even by school. It is important in this situation that, in addition to building a longitudinal data set, that services be provided to potential dropouts. Because of the need to provide services as well as follow sixth-grade students through to school leaving the identification of student participants should be systematic.

## Methodology

During the first semester of the 1988-89 academic year data about the entering sixth-grade population were collected. Previous fifth-grade teachers' at-risk referrals were noted before school opened and were used to initially identify the pool of children from which to select program participants. Information about students' age and gender were collected concurrently with

their perceived competence assessments during the first nine weeks of the school year. Data concerning the number and type of office referrals, attendance, and first semester's grades were gathered late in January.

Sample

The study was located in a small-city school district in North Carolina with a dropout rate above the state average. Contrary to national trends and with almost a 50% minority enrollment, the typical dropout in this district is a white male. All sixth graders (n=334) in the school district are housed in the same middle school and are the subjects of this study. There are 12 sixth-grade teachers who teach in five separate teams (three - two-teacher teams and two - three-teacher teams). Students take all their major academic subjects from teachers within their team. Students remain in the middle school for seventh grade and then go on to the junior high school for eighth and ninth grade.

Measurements

It is the school district's policy that all teachers complete Students Screening Forms for those students they believe to be at-risk of not succeeding at school. These teachers' referrals are filled out at the end of the school year and forwarded to counselors responsible for the next grade level. Current year teachers are not systematically made aware of who has been referred and who has not. Generally, the sixth graders have moved to the middle school from elementary school, so that fifth-grade teachers' at-risk referral are sent to the middle school counselor.

The Self-Perception Profile for Children (Harter, 1985) examines a child's self-reported global self-worth, scholastic competence, social acceptance, athletic competence, physical appearance, and behavioral conduct. Reliability coefficiencts (Cronbach's Alpha) for the six subscales are reported as ranging from .71 to .89, depending on the subscale and the sample used. Validity information is provided with factor patterns for three of the four samples, showing factor loadings for each of the six items defining a subscale ranging from .33 to .81. Intercorrelations among subscales range from .12 to .73. In addition to perceived competence on each of the six subscales, children are given the opportunity to rate the importance of five of the six subscales (excluding global self-worth). From this information a discrepancy score can be calculated. Harter argues that large discrepancies between importance and perceived compentence can indicate low self-worth. Perceived competence data were included as a predictor since they address school-related affective issues that are potentially related to dropping out of high school.

Information about discipline referrals to the office was gathered using the Assistant Principal's disciplinary action records. In following school district policy, all discipline referrals to the office and responses to those referrals must be kept in writing. Date of referral, behavior problem, and disciplinary action taken were compiled from individual student files. This information was then transformed into two variables: frequency of disciplinary action and severity of disciplinary

action. Frequency of disciplinary action was just a count of total referrals to the office during the semester. Severity of disciplinary action weighted each behavior referral by seriousness of the reponse action (e.g., warnings were weighted as 1, while a two-week suspension rated as 10). Weighted disciplinary actions were then totaled for the semester. The purpose of weighting disciplinary actions was to see if the additional variability introduced would sustantially improve the degree of possible predicted school success.

Grades

Grade information for each of seven subject areas (language arts, reading, math science, social studies, health/physical education, and enrichment or band) was taken from report card data. Grades were entered on report cards as percents. Grade point average (GPA) was calculate as the arithmetic mean of the seven subject grades. Any percent grade below 70 was counted as a grade of F (consistent with the school district's policy) and total number of F's for the semester were counted. In working with at-risk students, there is a difference between grade point average and number of courses failed. A comparison of the two intermediary outcomes measures seemed warranted.

## Results

Given that the size of the sample would allow weak relationships to show significance at higher probability levels, alpha was set at less than .001. Significant simple correlations of the predictor variables and outcome variables for the entire

sample (N = 334) were then selected for the regression analysis. Due to the deletion of cases with incomplete data for the selected variables, the sample used in the regression included a total of 262 sixth grade students. Correlations of the four outcome variables with the predictor variables are presented in Table 1 with means and standard deviations for each variable.

All correlations are in the direction expected. For example absenteeism is directly related to the number of F grades, so that as absences increase the number of F's tends to increase. The relationship of absences to GPA is inverse;with GPA tending to go down as absences go up. The same logic can be followed with the remaining correlation coefficients.

Notice too that the correlations of the predictors with the two sets of outcome variables are very similar. It is reasonable to assume that a child's perceived scholastic competence would be more strongly related to academic outcome measures (Number of F's and GPA) than behavior measures (Frequency of Office Referrals and Severity of the Office Referral Response. It is worth remarking that the same logic does not hold true for perceived behavior. It is also interesting that the four Harter perceived competence subscales (scholastic and behavior competence and their relative importances) are stronger predictors for GPA than for Grades of F.

Absences, 5th Grade Teacher At-Risk Referrals, and Age are consistently the strongest predictors of the four outcome measure. In fact the degree of consistency among the individual predictor correlations with the outcome variables argues for the presence of a similar phenomena observed. Finally, intercorrelations among

the outcome variables are high ( r = -.54 (severity of discipline with GPA; -.55 frequency of office referral with GPA; .56 severity of discipline with F's; .58 frequency of office referral with F's; .76 F's with GPA; and .97 frequency of office referral with severity of dicipline) and systematically higher where they are expected.

Table 1

Correlations of Predictor Variables with Outcome Measures

| | PREDICTORS | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| OUTCOME VARIABLES | 1 AGE | 2 SEX 0=Boy 1=Girl | 3 ABS | 4 REF 0=No 1=Yes | 5 SCH | 6 BEH | 7 SCHIM | 8 BEHIM |
| F Grades (Mean=.45, SD=1.07) | .42 | -.17 | .55 | .37 | -.22 | -.27 | -.19 | -.17 |
| Grade Point Average (Mean=85.29, SD=7.32) | -.50 | .19 | -.48 | -.45 | .34 | .33 | .26 | .29 |
| Frequency of Office Referrals (Mean=1.53, SD=3.33) | .26 | -.13 | .37 | .37 | -.07 | -.27 | -.19 | -.15 |
| Severity of Office Referral Response (Mean=7.30, SD=16.07) | .27 | -.13 | .39 | .37 | -.09 | -.32 | -.21 | -.21 |
| Means | 11.42 | .51 | 5.13 | .22 | 2.66 | 2.94 | 3.41 | 3.43 |
| Standard Deviations | .71 | .50 | 5.29 | .42 | .49 | .65 | .73 | .73 |

1= Age in Fall 1988
2= Gender
3= Absences during Fall Semester
4= 5th Grade At-Risk Referral
5= Perceived Scholastic Competence
6= Perceived Behavioral Conduct
7= Importance of Scholastic Competence
8= Importance of Behavioral Conduct

Table 2 shows the results of a series of stepwise multiple regression analyses that were run to predict each of the four outcomes variables. All four regresions models had F-statistics that were signficant at a probability of less than .001. The percentages of variation in the outcome measures explained by the predictor variables is higher for the academic outcomes (47% for GPA and 41% for number of F's) than for the behavior measures (27% for severity of disciplinary action and 25% for frequency of disciplinary action).

Table 2

Stepwise Regressions Analysis Predicting End of Semester Outcome Measures from Predictor Variables

| | $R^2$ | Predictors in Order of Entry |
|---|---|---|
| F Grades | .41 | Absence + Age + At-Risk Referral |
| Grade Point Average | .47 | Age + Absence + At-Risk Referral + Scholastic Competence |
| Frequency of Office Referrals | .25 | Absence + At-Risk Referral + Behavior Competence |
| Severity of Office Referral Response | .27 | Absence + At-Risk Referral + Behavior Competence |

Absences for the semester and At-Risk Referrals by 5th grade teachers were selected for inclusion in each of the four regression equations by virtue of the importance of their contribution in predicting each of the outcomes. Age is included in all but the GPA equation. A perceived competence measure is entered last in each of the equations except for predicting the number of F's, indicating that the entered variables explain a

unique portion of the variation in the outcome measure not explained by the other predictor variables preceeding it.

## Conclusions

The study confirms that it is possible to predict with a fair amount of accuracy children at-risk of receiving grades of F and what their expected grade point average might be. Even though grade point average had a higher $R^2$ than F-grades for the semester (.47 vs. .41), grade point average is not the preferred of the two. In working with at-risk students, predicting those students in danger of failing courses is more important than predicting if students will earn grades of B or C. Grade point average is a conceptually different outcome from F's and was included in the study as an alternative academic outcome. Had the degree of prediction between the two outcomes been more sizeable it might have tipped the balance toward using it. Given the small difference between the two predictors, number of F's for the semester is a theoretically stronger outcome indicator.

Behavior problems can be significantly but less accurately predicted. Given the high correlation between grades of F and the two behavior measures ($r$ = .56 and .58), F-grades for the semester is the strongest outcome of the four. The additional variability introduced with the discipline severity measure did usually result in increased correlations but not of the magnitude to warrant the time invested in collecting and coding the additional data.

Of the predictor variables absences, age, and 5th grade teachers' at-risk referrals were consistently identified as significant predictors of each of the outcome variables. Age and

some form of teacher referral information is fairly easy to collect early in the year, and previous year's absences or absences at the end of the first six weeks of school could be used in lieu of waiting an entire semester for the data.

The study supports the fact that teachers can identify students early in the semester who are at risk of failing. They can do so with measures that are easily accessible and a fair amount of accuracy. If they can identify at-risk students, it might be possible for them to intervene positively, thereby potentially preventing them from dropping out of school before they complete high school.

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